

CLAIMS

1. A system for energy production from the natural currents of the fluids, concerning fluvial currents, on bridges (P) or onto special structures, with the collection of altitude water to be used as potential energy, and concerning also bi-directional or multi-directional marine and wind currents, *characterized in*:
 - a plurality of floats (1) which allow a controlled immersion of special turbines (4) in the waterway below a bridge (P);
 - a plurality of hooking rods (2), passing through a plurality of openings (3) on said floats (1), so as to allow their installation between the lateral arches (AL) of said bridge (P);
 - a plurality of electric turbines (4), housed inside said floats (1), operated by the currents of the waterway in which they are immersed;
 - a plurality of grates (5) for the protection of said turbines (4), placed onto said floats (1) by means of guide systems which allow an easy removal for maintenance or complete replacing.
2. A system according to claim 1, *characterized in* the funnel-shape of said floats (1) that determines an increase of the power of the waterway current flowing through turbines (4) – proportional to the width and to the length of the storage – with a consequent increase of the total efficiency.

3. A system according to claim 1, *characterized in* the presence of baffles (6) placed upstream of said bridge (P), oriented in such a way as to guide the silts transported by the current towards the centre of the waterway, forcing the passage thereof through the central arch (AC) of said bridge (P), and in grates (5) for the protection of said turbines (4).
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4. A system according to claim 1, *characterized in* the presence of underground downflow channels (7) which favour, in case of flood, the elimination of exceeding water and maintain the water level at a height that does not compromise the functionality thereof.
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5. A system according to claim 1 for pumping water into collection basins or reservoirs, *characterized in*:
 - a plurality of floats (1'), for supporting a turbine (8);
 - 15 - eventual hooking rods (2'), passing through a plurality of openings (3') on said floats (1'), so as to assure the system to the ground of the river or onto special structures;
 - a turbine (8) provided with shaped blades (9), operated by the current of the waterway, and its movement is stored and made uniform by a fly-wheel (10) connected thereto;
 - 20 - a plurality of grates (5') for the protection of said turbines (8), placed on said floats (1') by means of guide systems allowing an easy removing for maintenance or complete replacing;

- mechanical transmissions (11) with differential gear, for transferring the motion of said turbine (8) towards special compressors (12), thus determining the functioning thereof;
 - a plurality of compressors (12) for pumping the water and leading it towards the collection and distribution basins or reservoirs (13).
- 5 6. A system according to claim 1, *characterized in* the shape of said floats (1') for determining an increase of the power with which the current of the waterway puts into rotation said turbine (8), through the action of said blades (9), thus increasing the total efficiency.
- 10 7. A system according to claims 1 and 6, *characterized in that* the rotation of said turbine (8), made uniform by the action of the fly-wheel (10), is transferred by differential gears (11) to compressors (12) for pumping the water, lead towards collection basins or reservoirs, or as an alternative towards the user, through collection and distribution pipings (13).
- 15 8. A system according to claims 1 and 6, *characterized in that* said compressors (12) are replaced by generators or magnets for the energy production.
- 20 9. A system according to claim 1, for the exploitation of bi-directional wind or submarine currents, *characterized in* the presence of structures (14,15) shaped for giving place to special forced channels (16) for leading the currents in the two directions towards the central turbine (17).
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10. A system according to claim 1, for the energy exploitation of multi-directional wind or submarine currents, *characterized in* structures (18) shaped for giving place to special forced channels (16') for leading the currents towards the central turbine (17'),
5 independently from their direction.

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